THIRD FIVE YEAR REVIEW REPORT

J & L LANDFILL SUPERFUND SITE

Rochester Hills, Michigan

June 2011

PREPARED BY:

United States Environmental Protection Agency
Region 5
Chicago, Illinois

Approved by: Date:

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Director
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Acronyms

Agencies	MDEQ and U.S. EPA
ARARs	Applicable or Relevant and Appropriate Requirements
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
FS	Feasibility Study
IC	Institutional Control
MCL	Maximum Contaminant Level
MDEQ	Michigan Department of Environmental Quality
MDNR	Michigan Department of Natural Resources
mg/kg	milligrams per kilogram
NCP	National Contingency Plan
NPL	National Priorities List
O&M	Operation and Maintenance
OU	Operable Unit
ppb	Parts per Billion
ppm	Parts per Million
PRP	Potentially Responsible Party
RA	Remedial Action
RD	Remedial Design
RI	Remedial Investigation
RI/FS	Remedial Investigation/ Feasibility Study
ROD	Record of Decision
RPM	Remedial Project Manager
SARA	Superfund Amendments and Reauthorization Act
Site	J&L Landfill Site
UAO	Unilateral Administrative Order
U.S. EPA	United States Environmental Protection Agency
UU/UE	Unrestricted Use/ Unlimited Exposure
µg/L	Micrograms per Liter
VOCs	Volatile Organic Compounds

Executive Summary

This is the third five year review for the J&L Landfill Site. The first five year review was completed and signed in September 2001, and the second five year review was signed in August 2006. The components of the remedy selected in the 1994 J&L Landfill Site Record of Decision (ROD) for the landfill operable unit and 1997 J&L Landfill Site ROD for the groundwater operable unit have been implemented, and the Site remains in long term operation and maintenance (O&M).

The soil/liner/clay landfill cap prevents surface water infiltration and subsequent contaminant migration off-site. Closure and post closure maintenance and monitoring of the Site landfill and monitoring of the Site groundwater continue as part of the O&M program. A public water supply main extension along Dequindre Road was completed in 2002, based on concern of the local groundwater quality, due to nine landfills identified in the area of a one-half mile radius surrounding the J&L Landfill Site. Sandfill Landfill No. 1, the Kingston Landfill and the Six-Star Landfill bordering the J&L Landfill Site to the west and upgradient remain an ongoing concern for potential off-site contaminant sources in the area.

The Site O&M program has been implemented under a cooperative agreement with the Michigan Department of Environmental Quality (MDEQ) since the last five year review in 2006. Some landfill gas vents and groundwater monitoring wells have become compromised over time, and need to be evaluated for potential repair or replacement before the next Site five year review. The ICs for the Site need to be updated so that they are effective over the long term and record the State of Michigan as the property owner.

Overall, the J&L Landfill Site remedy is protective of human health and the environment in the short term. Continued long term protectiveness requires implementing enhanced institutional controls; enforcement, compliance, maintenance and monitoring of effective ICs; and updating the operation & maintenance of Site monitoring systems.

Five Year Review Summary Form

SITE IDENTIFICATION		
Site name (from WasteLAN): J&L Landfill Superfund Site		
EPA ID (from WasteLAN): EPA ID# MID980609440		
Region: 5	State: MI	City/County: Rochester Hills, Oakland
SITE STATUS		
NPL status: _X_ Final __ Deleted __ Other (specify)		
Remediation status (choose all that apply): _Under Construction _X Operating _ Complete		
Multiple OUs? _X_YES _NO	Construction completion date: 9/30/1997	
Has Site been put into reuse? __ YES X-_NO		
REVIEW STATUS		
Lead agency: _X EPA __ State _ Tribe _ Other Federal Agency		
Author name: Jeff Gore		
Author title: Remedial Project Manager	Author affiliation: U.S.EPA, Region 5	
Review period: _11_ / _1_ / _2010__ to June _2011__		
Date(s) of Site inspection: _11_ / _4_ / __2010_		
Type of review: _X Post-SARA _ Pre-SARA _ NPL-Removal only _ Non-NPL Remedial Action Site __ NPL State/Tribe-lead _ Regional Discretion		
Review number: _ 1 (first) _ 2 (second) _X 3 (third) _ Other (specify) _____		
Triggering action: _ Actual RA Onsite Construction at OU #____ __ Actual RA Start at OU#_NA___ _ Construction Completion _X Previous Five Year Review Report _ Other (specify)		
Triggering action date (from WasteLAN): _08_ / _23_ / _2006___		
Due date (five years after triggering action date): 08_ / _23_ / _2011____		

Issues:

- Some landfill gas vents and groundwater monitoring wells have become compromised over time.

- Implementation of enhanced ICs for the Site property that are enforceable, effectively run with the land, and that record the State of Michigan as the property owner.

- Long term stewardship for maintaining and monitoring effective ICs.

Recommendations and Follow-up Action

- U.S. EPA will work with the MDEQ to evaluate and access the repair or replacement of certain Site landfill gas vents and groundwater monitoring wells.

- U.S. EPA will work with MDEQ to prepare and implement restrictive covenant(s) or other ICs for the Site that are enforceable, effective, run with the land, and record the State of Michigan as the property owner.

- The Site operation and maintenance progress reports will be amended to include a section on maintaining and monitoring ICs.

Protectiveness Statement(s):

Landfill OU (OU1) Protectiveness:

The J&L Landfill Site landfill remedy is protective of human health and the environment in the short term. Continued long term protectiveness requires implementing enhanced Site institutional controls; enforcement, compliance, maintenance and monitoring of effective ICs; and updating the operation & maintenance of Site monitoring systems.

Groundwater OU (OU2) Protectiveness:

The Site groundwater remedy is also protective of human health and the environment in the short term. Continued long term protectiveness requires implementing enhanced institutional controls; enforcement, compliance, maintenance and monitoring of effective ICs; and updating the operation & maintenance of Site monitoring systems.

Overall Site Protectiveness:

Overall, the J&L Landfill Site remedy is protective of human health and the environment in the short term. Continued long term protectiveness requires implementing enhanced institutional controls; enforcement, compliance, maintenance and monitoring of effective ICs; and updating the operation & maintenance of Site monitoring systems.

1.0 INTRODUCTION

The United States Environmental Protection Agency (U.S. EPA) Region 5 has conducted a five year review of the remedial actions implemented at the J&L Landfill Superfund Site in Rochester Hills, Michigan. U.S. EPA conducted the review between November 2010 and June 2011. This report documents the results of the five year review. The purpose of five year reviews is to determine whether the remedy at a site is protective of human health and the environment. Five year review reports document the methods, findings, and conclusions of the review, as well as identifying issues found during the review, if any, and making recommendations to address them.

This review is required by statute. U.S. EPA must implement five year reviews consistent with the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) and the National Oil and Hazardous Substances Pollution Contingency Plan (NCP). CERCLA § 121(c), as amended, states:

> If the President selects a remedial action that results in any hazardous substances, pollutants, or contaminants remaining at the site, the President shall review such remedial action no less often than each five years after the initiation of such remedial action to assure that human health and the environment are being protected by the remedial action being implemented.

The NCP at title 40, part 300, section 430(f)(4)(ii) of the Code of Federal Regulations (CFR) states:

> If a remedial action is selected that results in hazardous substances, pollutants, or contaminants remaining at the site above levels that allow for unlimited use and unrestricted exposure, the lead agency shall review such action no less often than every five years after the initiation of the selected remedial action.

U.S. EPA, Region 5, along with the Michigan Department of Environmental Quality (MDEQ) completed the five year review of the remedy implemented at the J&L Landfill Site. The review was conducted by Jeff Gore, U.S. EPA Remedial Project Manager (RPM); and Autumn Lawson, State Project Manager with MDEQ, assisted in the review. This report documents the results of the review.

This is the third five year review for the J&L Landfill Superfund Site. The second five year review report was completed and signed in August 2006. A statutory five year review is required due to the fact that hazardous substances, pollutants, or contaminants remain at the Site above levels that allow for unlimited use and unrestricted exposure.

2.0 SITE CHRONOLOGY

Table 1. Chronology of Site Events	
Date	**Event**
1983	Preliminary Site assessment by U.S. EPA
1985	Site field investigation
June 1986	Proposed for NPL listing
March 1989	NPL final listing
1989	RI/FS initiated for Site landfill and groundwater
January 1994	RI/FS completed for landfill
June 1994	ROD signed for landfill (OU1)
June 1995	UAO issued for landfill
August 1997	RI/FS completed for groundwater
September 1997	ROD signed for groundwater (OU2)
September 1997	Remedy construction completion
June 1998	UAO issued for groundwater
September 2001	First five year review completed
August 2002	Water main extension and well abandonment completed
August 2006	Second five year review completed
June 2011	Third five year review completed

3.0 BACKGROUND

3.1 Physical Characteristics

The J&L Landfill Superfund Site is approximately 17 acres in size and is located near the intersection of Hamlin and Dequindre Roads in Rochester Hills, Michigan (See figure 1). A number of landfills are located within a one-half mile radius of the Site. Residential homes exist just south of the Site along Hamlin Road. Other homes are located to the northwest and east of the Site.

3.2 Land and Resource Use

The J & L Landfill Site is bordered on the west by the Sandfill Landfill No. 1, the Kingston Landfill and the Six-Star Landfill; to the east by Sandfill Landfill No. 2 and the Sportsman Club Landfill; further east are the Hamlin Road Landfill and the Malo Tree Landfill; and to the north of the Site is the Mal Enterprises Landfill. Ladd Drain runs just north of the Site and flows into the Clinton River, located less than one mile to the east. All Site surface drainage leads to Ladd Drain, with area surface water and groundwater flowing east toward the Clinton River. There is not any anticipated change in the land use of the landfills surrounding the Site.

3.3 History of Contamination

The J&L Site was used for sand and gravel mining prior to becoming a landfill. Disposal of steel slag and steel manufacturing wastes began as early as 1951. J&L Steel, before merging with LTV Steel, purchased the Site in 1957 from the Rotary Electric Steel Company and became the land owner. In 1968, electric arc furnace (EAF) dust collected from steel manufacturing baghouse filters began to be deposited at J&L Landfill. Wastes continued to be deposited at the Site until 1980 when the landfill was closed and capped.

3.4 Initial Response

The Michigan Department of Natural Resources (MDNR) conducted an area groundwater study in 1976 and identified local groundwater contamination attributed primarily to another landfill west of the J&L Landfill. As a result, local residents were provided with an alternative drinking water supply. The Michigan study also determined that a number of surrounding landfill sources possibly contributed to the area groundwater contamination. U.S. EPA contractor Ecology and Environment, Inc. (E&E) completed a Preliminary Site Assessment at J&L Landfill in 1983, a Site Inspection in 1984 and a Field Investigation in 1985.

3.5 Basis for Taking Action

J&L Landfill was proposed for inclusion to the National Priorities List (NPL) on June 10, 1986. The Site became a final NPL listing on March 31, 1989. U.S. EPA completed a remedial investigation (RI) through a contractor in December 1991. The report included results stating that approximately 455,000 cubic yards of material were deposited in the landfill, with a large portion of the waste being steel manufacturing slag and EAF dust. The landfill cap was not being maintained, showed signs of erosion and was not adequate. Both the upper and lower portions of the shallow aquifer around the Site were contaminated with volatiles, semivolatiles, pesticides and inorganics. Groundwater entering the J&L Landfill Site already contained these contaminants, indicating upgradient sources. Soil sampling results showed elevated levels of inorganics in surface soils at the southwest and northeast areas of the landfill, indicating the probable presence of steel slag material in the cap. Low levels of volatiles and semivolatiles were present in samples from the sideslopes of the east ditch, a sediment pond and Ladd Drain. Based on the results of the RI and previous investigations, U.S. EPA divided the Site into a Landfill Operable Unit (OU1) and a Groundwater Operable Unit (OU2).

A Feasibility Study (FS) for the Landfill OU was completed in January 1994. The ROD for the Landfill OU was also signed June 30, 1994. A FS was completed to address the Groundwater OU in August 1997. The Groundwater FS included additional information from groundwater sampling which took place in 1996. The ROD for the Groundwater OU was signed September 30, 1997.

Findings of the Landfill RI/FS:

The three predominant waste types disposed at the J&L Landfill Site include steel manufacturing slag, EAF dust, and general refuse. The earliest records relating to site waste disposal indicate that a permit to dispose of slag was granted by Avon Township on July 22, 1951. The site had previously been used as a sand and gravel mining operation. The J&L Steel Company purchased the site on April 30, 1957. Undocumented disposal activities apparently took place until April 1963 when J&L informed Avon Township that increased amounts of slag were being disposed at the Site. Beginning in 1967 or 1968, EAF dust was co-disposed with slag at the Site, and at this point, steel production figures became available to calculate estimated waste disposal. In 1972, actual site disposal reports and topographic maps became available documenting total waste disposal. Also in 1972, the operating permit was amended to allow for the disposal of general refuse. The Site landfill was closed in 1980.

Land uses in the vicinity of the Site include residential, industrial, recreation, landfilling, and mining. The Site itself is zoned for light industrial development. The nearest residences are southwest of the site with additional residential zones existing throughout the area. The Site is bounded on three sides by landfills, and at least six other landfills are located within 1/2 mile of the Site.

Source characterization activities consisted of a geophysical survey and waste boring sampling and analysis. The geophysical survey determined the limits of slag and general refuse within the landfill boundaries, and the waste borings determined the vertical extent. The results indicate that an estimated volume of waste contained within the Site is approximately 455,000 cubic yards, of which approximately 65% (295,750 cubic yards) consists of steel manufacturing waste (slag and EAF dust), and approximately 35% (159,250 cubic yards) consists of general refuse materials.

Results of waste boring sampling indicate that volatiles and semivolatiles are predominantly associated with general refuse and are only present in the slag material in very low concentrations. Inorganics (metals) are the principal component of slag material and are found in varying concentrations with significant differences noted over very short depth intervals within the landfill.

Findings of the Groundwater RI/FS:

The J&L Landfill Site is on the surface of a glaciolacustrine delta sloping to the southeast at a relatively shallow gradient. It is comprised of approximately 35 to 40 feet of sand and gravel deposits which have been extensively mined throughout the area. Underlying the sand and gravel deposits are thick lacustrine and morainal silty clay deposits followed by bedrock composed primarily of shales.

An unconfined water table aquifer extends into Site waste materials. Monitoring wells installed on site and off site indicate that groundwater flow in the upper and lower portions of the aquifer is eastward, and water table elevations fluctuate seasonally. Slug tests performed on all on-site monitoring wells indicate that the mean hydraulic conductivity for the upper portion of the aquifer is more permeable and conducive to contaminant transport than the lower portion of the aquifer.

The results of residential well sampling indicate that only two semivolatiles (bis[2-ethylhexyl]phthalate and phenol) and one pesticide (Gamma-BBC[Lindane]) are present at very low levels in upgradient wells. No volatile organics were detected. Inorganics were detected in upgradient and downgradient wells at generally low levels. Only lead exceeds the Maximum Contaminant Level (MCL) in one upgradient well location with respect to the J&L Landfill Site.

The results of on-site and off-site groundwater monitoring sampling indicate that volatiles, semivolatiles, pesticides, and inorganics are present in groundwater beneath the site at varying levels. The majority of volatiles, semivolatiles, and pesticides encountered are associated with shallow, saturated general refuse. Similar levels of these compounds are also present in some upgradient locations, indicating that groundwater contains some of these constituents as it enters the J&L Landfill Site.

4.0 REMEDIAL ACTIONS

4.1 Remedy Selection

The remedial response actions outlined by U.S. EPA for the J&L Landfill Site have included the June 1994 Landfill ROD and the September 1997 Groundwater ROD.

1994 Landfill ROD Components:

- A multi-layer soil/liner/clay cap with passive gas management system.
- Consolidation of any contaminated surface soils and sediments into the landfill beneath the cap.
- Regrading the Site to promote proper surface water runoff, vegetation and management.
- A perimeter fence to restrict access.
- Institutional controls including deed restrictions on and near the Site to limit land and groundwater use.
- Upgraded groundwater monitoring and a monitoring plan for landfill components.

Remedial action objectives for the Site landfill remedy are to provide adequate protection of human health and the environment by containing and maintaining waste material beneath the landfill cap, while limiting the potential for the release of contaminants to the ambient air, sub-waste soils, and the groundwater; and to minimize the migration of constituents to groundwater that would contribute to concentrations in excess of U.S. EPA MCLs.

1997 Groundwater ROD Components:

- Requirements to implement enforceable deed restrictions which restrict groundwater use at that portion of the facility where contaminated groundwater from J&L Landfill has come to be located under Sandfill Landfill #2, in addition to the deed restriction currently in place on the Site property.

- Installing three monitoring well nests, one upgradient and two downgradient, with each nest consisting of a shallow and a deep well.

- Perform baseline quarterly groundwater monitoring and subsequent annual groundwater monitoring, if deemed appropriate, of contaminants of concern at residential wells and at on-site and offsite monitoring wells. As a contingency, if these downgradient wells indicate that there is an unacceptable risk due to contamination from the J&L Landfill Site, residences will be provided with an alternate water supply.

Remedial action objectives for the Site Groundwater remedy are reduction of the migration of contaminants of concern in groundwater at and beyond the Site waste boundaries in order to meet U.S.EPA MCLs, and to eliminate the groundwater exposure pathway for potential human receptors.

4.2 Remedy Implementation

Landfill Remedy:

Negotiations for the remedial design/remedial action (RD/RA) with the PRPs were initiated but no settlement was reached. On June 27, 1995 a Unilateral Administrative Order (UAO) pursuant to 106 of CERCLA was issued to LTV Steel to perform the RD/RA for the Landfill remedy and take additional samples for the Groundwater remedy.

Construction in accordance to the Landfill OU remedy began in the summer of 1996 and was completed in the fall of 1997. The multi-layer cap with protective liner was constructed to cover all landfill waste and the east ditch. The remedy produced four monitoring systems: Passive gas collection and venting; a gas migration monitoring well; surface water infiltration monitors; and groundwater monitoring wells. The sediment pond was also backfilled with clean fill, culverts were sealed to avoid leachate migration, and the security chain link fence was installed.

Groundwater Remedy:

U.S. EPA issued a second UAO pursuant to 106 of CERCLA to LTV Steel on June 5, 1998. This UAO directed LTV Steel to perform a remedial design and to further implement any

appropriate remedial action for the Groundwater OU. An expanded groundwater monitoring program was approved in 1998 which included 10 monitoring well locations.

An Alternative Water Supply Plan was submitted in 1999 addressing the possibility of providing public water to any residences with private water wells near the Site, to eliminate any potential groundwater risk from the local aquifer. Local resident surveys were completed in 1999, 2000 and 2001 to assess the need for public water. A public water supply main extension and private well abandonments were completed in August 2002.

4.3 Institutional Controls

Institutional Controls (ICs) are non-engineered instruments, such as administrative and legal controls, that help to minimize the potential for exposure to contamination and that protect the integrity of the remedy. ICs are required to assure the long term protectiveness for any areas which do not allow for unlimited use or unrestricted exposure (UU/UE). The Site remedy is embodied in two operable unit RODs. ICs are required by the Site RODs to restrict property use and maintain the integrity of the remedy. The Site 1994 ROD required ICs including deed restrictions to limit Site land and groundwater use. The 1997 ROD also required Site institutional controls that include deed restrictions which restrict groundwater use. A summary of the implemented and planned ICs for the Site is listed in Table 2.

Table 2. Institutional Controls Summary Table

Media, Engineered Controls & Areas that Do Not Support UU/UE on Current Conditions	IC Objective	IC Instrument Implemented or Planned
On-site soil landfill area (~17 acres). Property parcel formerly owned by LTV Steel Company, Inc.	Restricts residential development, land & groundwater use, and protects the integrity of the Site remedy.	Declaration of Restrictions on Use of Real Property recorded Liber No. 15839 at Oakland County Recorder's office on November 27, 1995 (implemented).
Groundwater underlying on-site landfill area. Property parcel formerly owned by LTV Steel Company, Inc.	Restricts residential development, land & groundwater use, and protects the integrity of the Site remedy.	Declaration of Restrictions on Use of Real Property recorded Liber No. 15839 at Oakland County Recorder's office on November 27, 1995 (implemented).
On-site soil landfill area (~17 acres). Property parcel formerly owned by LTV Steel Company, Inc.	Restricts residential development, land & groundwater use, and protects the integrity of the Site remedy.	Restrictive Covenant(s) or other legal instrument that run with the land for Site property in receivership by State of Michigan (planned).
Groundwater underlying on-site landfill area. Property parcel formerly owned by LTV Steel Company, Inc.	Restricts residential development, land & groundwater use, and protects the integrity of the Site remedy.	Restrictive Covenant(s) or other legal instrument that run with the land for Site property in receivership by State of Michigan (planned).

The Site map Figures 1 and 2 attached to this document outline the landfill property boundary and the areas that need to be addressed by institutional controls at the Site.

CURRENT AND PLANNED INSTITUTIONAL CONTROLS

Site Declaration Restriction on Use of Real Property Currently Implemented: A Declaration of Restrictions on Use of Real Property was recorded Liber No. 15839 at Oakland County Recorder's office on November 27, 1995, on the approximately 17 acre Site landfill area formerly owned by LTV Steel Company, Inc., which restricts residential development, land & groundwater use, and protects the integrity of the Site remedy. LTV Steel Company subsequently declared bankruptcy and became financially insolvent. As a result of a change of the Site property owner, the 1995 Declaration of Restrictions became unenforceable and did not provide long term protectiveness.

Institutional Controls Planned: Oakland County, Michigan foreclosed on the 17 acre J&L Landfill Site property in 2006, after the LTV Steel Company became financially insolvent. The State of Michigan then proceeded to take over ownership of the 17 acre property formerly owned by LTV Steel, under receivership from Oakland County utilizing the Michigan Land Bank Authority.

ICs in the form of a restrictive covenant or other legal instrument by the State of Michigan that will remain effective over the long term are necessary for the Site. These ICs will assure that all property on the Site is properly defined and restricted, that use of groundwater impacted by the Site is properly restricted, and that the integrity of the remedy is protected over the long term. The additional restrictive covenant(s) or other legal instrument would cover all of the 17 acre Site landfill area and run with the land.

CURRENT COMPLIANCE

Based on the Site inspection conducted by U.S. EPA and MDEQ in November 2010, compliance with the existing implemented use restrictions was observed. The additional planned ICs listed are needed so that the Site remedy can remain protective over the long term. No Site uses inconsistent with the intended uses and restrictions as depicted in the implemented ICs were observed.

4.4 System Operations/Operation and Maintenance (O&M)

The J&L Landfill Site monitoring program was approved and initiated in the summer of 1998. The O&M program included sampling of 10 groundwater monitoring wells. In addition, the Site operation and maintenance program involved inspection and maintenance of the multi-layer landfill cap. The soil/liner/clay cap with venting at the Site minimizes any potential infiltration through the landfill contents, and controls the risk of contamination migrating into the shallow aquifer and potentially off-site. Long-term maintenance of the cap is required to ensure that the remedy remains effective, and ensures containment of Site waste material.

An Alternative Water Supply Plan was submitted in 1999 addressing the possibility of providing public water to any residences with private water wells near the Site, to eliminate any potential groundwater risk from the local aquifer. Local resident surveys were completed in 1999, 2000 and 2001 to assess the need for public water. As a result of the public water supply survey completed in 2001, a water supply main extension along Dequindre Road was completed in 2002. This allowed for public water to be provided to the few buildings in the immediate area of the J&L Landfill Site not already on public water. Five private wells were also abandoned after public water was supplied to the locations.

Ambient air monitoring was completed through 2002 at 6 locations along the Site fence line, and it was determined that air quality at the Site fence line did not pose any risk to potential off-site receptors.

Operation and maintenance responsibilities at the J&L Site were performed by a potentially responsible party (PRP) contractor, until MDEQ began performing the O&M activities in 2006. Current annual O&M costs at the J&L Landfill Site include groundwater monitoring, landfill operation and maintenance, sampling, lab analysis, reporting, and Site inspections. Estimated annual oversight costs for the last three years are approximately $40,000 per year.

Table 3. Annual System Operations/ O&M Costs

Dates		Total Cost Estimate
From	To	
Jan. 1,2008	Dec. 31, 2008	$40,000
Jan. 1, 2009	Dec. 31, 2009	$40,000
Jan. 1, 2010	Dec. 31, 2010	$40,000

5.0 PROGRESS SINCE LAST FIVE YEAR REVIEW

This is the third five year review for the J&L Landfill Site. U.S. EPA completed the second five year review in August 2006. The 2006 review made the following recommendations to issues noted at the Site:

Table 4: Actions Taken Since the Last Five Year Review

#	Issue	Recommendations/Follow-up actions	Party Responsible	Mile-stone Date	Action Taken	Date of Action
1	Cap erosion and animal burrowing.	Repair as needed	PRPs/ MDEQ	Ongoing	Site inspection	Ongoing
2	Monitoring well rusting and displacement.	Repair as needed	PRPs/ MDEQ	Ongoing	Site inspection	Ongoing
3	Monitoring well lock replacement	Repair as needed	PRPs/ MDEQ	Ongoing	Site inspection	Ongoing

Actions taken at the Site after the 2006 recommendations:

1) Site landfill cap erosion is revealed at ongoing Site inspections, and is corrected by filling and regrading on an as needed basis.

2) Limited monitoring well rusting and displacement is an ongoing issue at the Site. Monitoring wells are repaired as needed, and may be abandoned and replaced if they are extensively degraded.

3) Monitoring well lock issues are revealed during sampling and inspection activities, and are replaced on an as needed basis.

6.0 FIVE YEAR REVIEW PROCESS

6.1 Administrative Components

The J&L Landfill Superfund Site five year review report was prepared by Jeff Gore, U.S. EPA RPM. Autumn Lawson, State Project Manager with MDEQ assisted in the review. The five year review consisted of a Site inspection and review of relevant documents. The notice letter to MDEQ regarding initiation of the five year review was signed November 1, 2010.

6.2 Community Notification and Involvement

The completed third five year review report will be available in the Site information repository, and the U.S. EPA record center for public view. An advertisement notice regarding the five year review process was placed in the Oakland County, MI Oakland Press newspaper for public view on April 14, 2011, and is included as an attachment to this report.

Any other community relations ongoing at the J&L Landfill Site include providing information on the ongoing operation & maintenance program currently being carried out to assure the requirements outlined in the remedy are being maintained.

6.3 Document Review

In preparation for this five year review report, J&L Landfill Site documents were reviewed including the following:

- Second Five Year Review Report, August 2006.
- First Five Year Review Report, September 2001.
- UAO for the Site Groundwater ROD, June 1998.
- Site Groundwater Record of Decision, September 1997.
- UAO for the Site Landfill ROD, June 1995.

- Site Landfill Record of Decision, June 1994.

- J&L Landfill Site file, and operation & maintenance documents.

6.4 Data Review

Landfill Data Review:

Recent Site inspections indicate that the Site landfill multi-layer cap with venting is in good condition, although some settling and shifting appears to have taken place at various locations in the landfill grade. The settling in the landfill cap has created shifting in a number of the landfill vents, and as a result, some of the vents appear not to be venting properly. Higher methane levels are being observed at the southern section and boundary of the landfill, while some gas vents at various portions of the landfill are producing little if any methane. Repair of the landfill vents which have shifted and are not venting methane properly, along with further investigation to correct this issue is recommended.

Groundwater Data Review:

Recent monitoring results for volatile organic compounds (VOCs) are consistent with previous trends at the J&L Landfill Site, which show that MCL drinking water standards for VOCs are being met with the exception of benzene at upgradient well GW07S. The most recent May 2010 sampling results at well GW07S showed benzene at a level of 16 u/l. Benzene has historically shown an exceedence in this upgradient shallow monitoring well, which has been attributed to some source off-site.

A number of groundwater samples continue to consistently exceed Michigan drinking water criteria. Various inorganic compounds including metals exceeded Michigan criteria at most of the Site monitoring well locations. In addition, May 2010 results showed well MW02S and GW06S exceeded Michigan drinking water criteria for tetrahydrofuran.

Some monitoring well locations have been compromised, and consideration of repair or replacement of these monitoring wells before the next five year review is recommended.

6.5 Site Inspection

The Site inspection for this five year review was performed on November 4, 2010 by RPM Jeff Gore of U.S. EPA and MDEQ project manager Autumn Lawson. Mark Henry of MDEQ was also present during the inspection. The five year review site inspection checklist was used as a guideline for the Site inspection, and is available in the Site file and administrative record.

The Site was found to be in good condition in general during the inspection, with no signs of damage by weather or vandalism. A light rain was falling prior to arriving at the Site location. The Site access fence remained intact around the perimeter, and the security gate was locked upon arrival for the Site inspection. The access road with gravel was in good condition.

A walk around the Site landfill area showed that settling in the landfill cap over time has created shifting in a number of the landfill vents. This does not seem to be an issue with the landfill cover, as observations of the landfill showed that the settling did not impact the runoff of surface water over the slopes of the cap. Some erosion occurred around the casing of monitoring well GW08D.

All groundwater monitoring well locks were properly in place. An inspection of the monitoring well showed a few of the well casings rusting near the ground surface. Certain monitoring wells may be recommended for repair or replacement before the next five year review.

7.0 TECHNICAL ASSESSMENT

7.1 Question A: Is the remedy functioning as intended by the decision documents? Yes.

RA Performance: The remedial action components included in the J&L Landfill 1994 and 1997 RODs have been implemented, and the Site remains in operation and maintenance. Construction of the multi-layer landfill cap was completed in the fall of 1997. The long-term groundwater monitoring program has been in place at the site since 1998. Certain landfill gas vents and groundwater monitoring wells that have become compromised over time may need to be repaired or replaced before the next five year review in 2016. Remedial action objectives for the Site are being met, noting the issues and recommendations listed in this report.

Cost of System Operations/O&M: Current annual O&M costs at the J&L Landfill Site are primarily attributed to operation, maintenance and management of the Site landfill, and groundwater monitoring systems. 2010 Site estimated O&M costs are approximately $40,000.

Opportunities for Optimization: No opportunities for optimization at the Site are planned at this time.

Early Indicators of Potential Remedy Problems: There have been no indications of potential issues with the J&L Landfill Site remedy since the last five year review in 2006.

Implementation of Institutional Controls and Other Measures: The 1994 ROD for the Site required Institutional Controls including deed restrictions to limit Site land and groundwater use. The 1997 ROD also required Site institutional controls that include deed restrictions which restrict groundwater use. A Declaration of Restrictions on Use of Real Property was recorded Liber No. 15839 at Oakland County Recorder's office on November 27, 1995, on the approximately 17 acre Site landfill area formally owned by LTV Steel Company, Inc., which restricts residential development, land and groundwater use, and protects the integrity of the Site remedy. Enhanced ICs in the form of a restrictive covenant or other legal instrument by the State of Michigan that run with the land, remain effective over the long term, and assure long-term stewardship are necessary for the Site.

Current Use Compatibility with Land and Groundwater Use Restriction: Based on the Site inspection conducted by U.S. EPA and MDEQ in November 2010, compliance with the current implemented use restrictions was observed. The additional planned ICs listed in this report are needed so that the Site remedy can remain protective in the long term. No Site uses inconsistent with the intended uses and restrictions as depicted in the implemented ICs were observed.

7.2 Question B: Are the assumptions used at the time of remedy selection still valid? Yes.

Changes in Standards and To Be Considered: Standards outlined and reviewed in the Site 1994 ROD, 1997 ROD, and the 2001 and 2006 Five Year Review Reports are still valid at the J&L Landfill Site. There have been no known changes in standards to be considered since the last review in the 2006 Five Year Review Report.

Changes in Exposure Pathways: No new exposure pathways have been discovered at the J&L Landfill Site since the last five year review in 2006.

Changes in Risk Assessment Methodologies: Risk assessment methodologies used at the J&L Landfill Site since the second five year review in 2006 have not changed, and do not call into question the protectiveness of the remedy.

7.3 Question C: Has any other information come to light that could call into question the protectiveness of the remedy? No.

There has been no other known information that could call into question the protectiveness of the remedy.

Technical Assessment Summary

According to the data reviewed and the Site inspection, the remedy is substantially functioning as intended in the J&L Landfill Site 1994 ROD and 1997 ROD. Ongoing O&M Site monitoring continues to provide assurance that the remedy is functioning as intended. No other information has been identified which would call into question the protectiveness of the remedy.

8.0 ISSUES

The following issues in Table 5 were identified during the five year review process which impact protectiveness under CERCLA.

Table 5. Issues that Impact Protectiveness

Issue	Currently Affects Protectiveness (Y/N)	Affects Future Protectiveness (Y/N)
Some landfill gas vents and groundwater monitoring wells have become compromised over time	N	Y

Table 5. Issues that Impact Protectiveness		
Issue	**Currently Affects Protectiveness (Y/N)**	**Affects Future Protectiveness (Y/N)**
Implementation of enhanced ICs for the Site property that effectively run with the land, and record the State of Michigan as the property owner	N	Y
Long term stewardship for maintaining and monitoring effective ICs	N	Y

Y=yes: N=no

9.0 RECOMMENDATIONS AND FOLLOW-UP ACTIONS

Recommendations and follow-up actions in Table 6 for issues that impact protectiveness and were noted in Table 5:

- U.S. EPA will work with the MDEQ to evaluate and access the repair or replacement of certain Site landfill gas vents and groundwater monitoring wells.
- U.S. EPA will work with MDEQ to prepare and implement restrictive covenant(s) or other ICs for the Site that are enforceable, effective, run with the land, and record the State of Michigan as the property owner.
- The Site operation and maintenance progress reports will be amended to include a section on maintaining and monitoring ICs.

Table 6. Recommendations and Follow-up Actions						
Issue	**Recommendations/ Follow-up Actions**	**Party Responsible**	**Oversight Agency**	**Milestone Date**	**Affects Protectiveness(Y/N)**	
					Current	**Future**
Site landfill gas vents and groundwater monitoring wells.	Repair or replace as needed gas vents and groundwater monitoring wells	MDEQ	USEPA	Sept. 2012	N	Y
Update existing Site ICs,	Implement Site IC/ restrictive covenant that records State of Michigan as property owner	USEPA/ MDEQ	USEPA/ MDEQ	Sept. 2012	N	Y

Table 6. Recommendations and Follow-up Actions						
Issue	**Recommendations/ Follow-up Actions**	**Party Responsible**	**Oversight Agency**	**Milestone Date**	**Affects Protectiveness(Y/N)**	
					Current	**Future**
Long term stewardship for effective ICs	Amend O&M progress reports to include section on ICs	MDEQ	USEPA	Sept. 2012	N	Y

Y=yes; N=no

10.0 PROTECTIVENESS STATEMENT(S)

Landfill OU (OU1) Protectiveness:

The J&L Landfill Site landfill remedy is protective of human health and the environment in the short term. Continued long term protectiveness requires implementing enhanced Site institutional controls; enforcement, compliance, maintenance and monitoring of effective ICs; and updating the operation & maintenance of Site monitoring systems.

Groundwater OU (OU2) Protectiveness:

The Site groundwater remedy is also protective of human health and the environment in the short term. Continued long term protectiveness requires implementing enhanced institutional controls; enforcement, compliance, maintenance and monitoring of effective ICs; and updating the operation & maintenance of Site monitoring systems.

Overall Site Protectiveness:

Overall, the J&L Landfill Site remedy is protective of human health and the environment in the short term. Continued long term protectiveness requires implementing enhanced institutional controls; enforcement, compliance, maintenance and monitoring of effective ICs; and updating the operation & maintenance of Site monitoring systems.

11.0 NEXT REVIEW

The five year review for the J&L Landfill Site is a statutory review. U.S. EPA conducts statutory reviews at sites where the remedies selected result in hazardous substances, pollutants, or contaminants remaining at levels above those that allow for unlimited use and unrestricted exposure. Since the J&L Landfill Site contains hazardous substances, pollutants or contaminants that will potentially remain above U.S. EPA and State of Michigan regulatory standards in the future, the Site will require ongoing Five Year Reviews. Therefore, another report will be scheduled five years after this report is completed. The completion date of the current five year review is the signature date shown on the cover attached to this report.

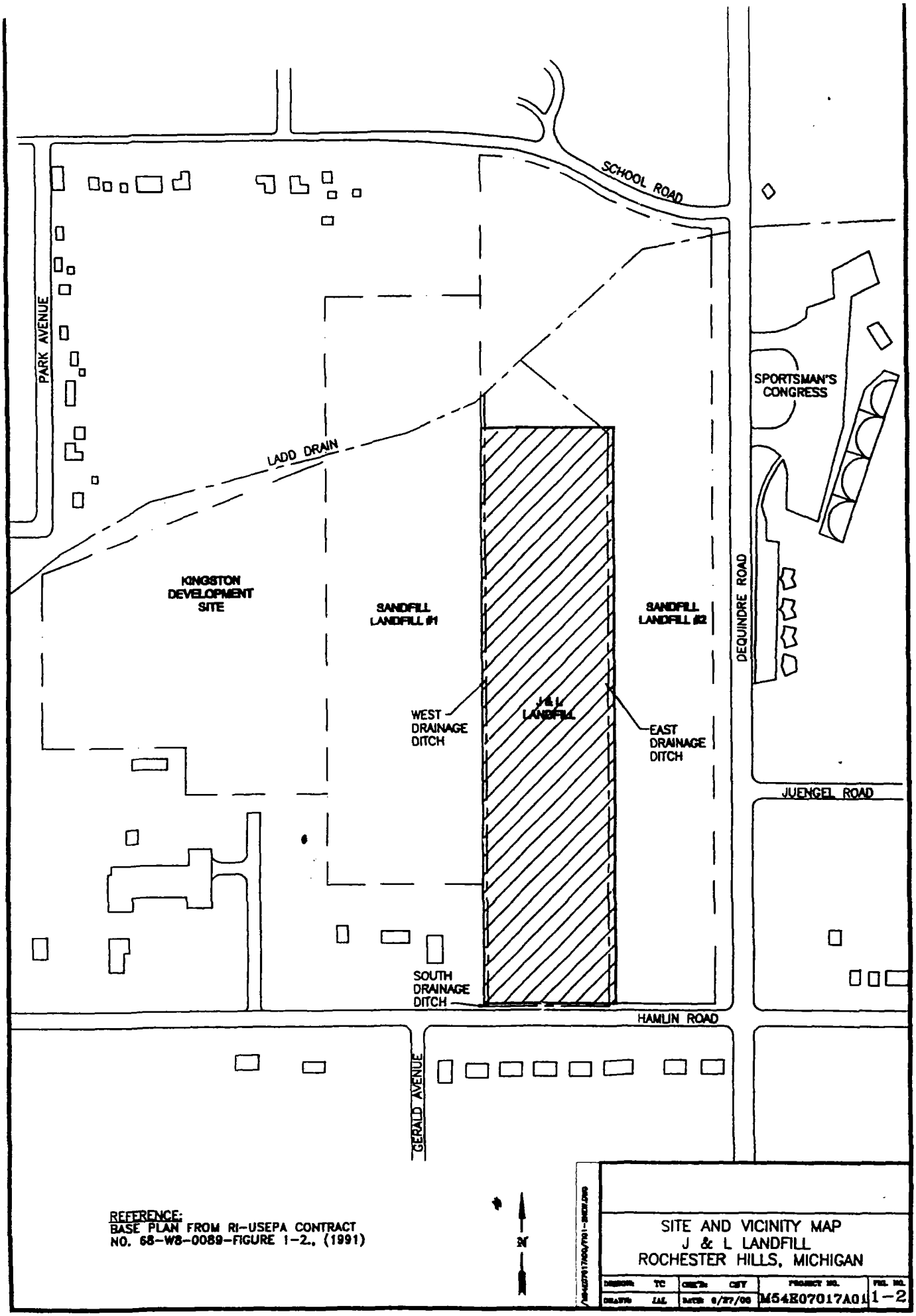

SCHOOL ROAD
PARK AVENUE
LADD DRAIN
SPORTSMAN'S CONGRESS
DEQUINDRE ROAD
KINGSTON DEVELOPMENT SITE
SANDFILL LANDFILL #1
SANDFILL LANDFILL #2
J & L LANDFILL
WEST DRAINAGE DITCH
EAST DRAINAGE DITCH
JUENGEL ROAD
SOUTH DRAINAGE DITCH
HAMLIN ROAD
GERALD AVENUE
REFERENCE:
BASE PLAN FROM RI-USEPA CONTRACT NO. 68-W8-0089-FIGURE 1-2., (1991)
SITE AND VICINITY MAP
J & L LANDFILL
ROCHESTER HILLS, MICHIGAN
DESIGN TC
CHK'D CBT
PROJECT NO. M54E07017A01
DRAFTD LLL
DATE 6/27/00
FIG. NO. 1-2

Figure 1

Institutional Control (IC) Review

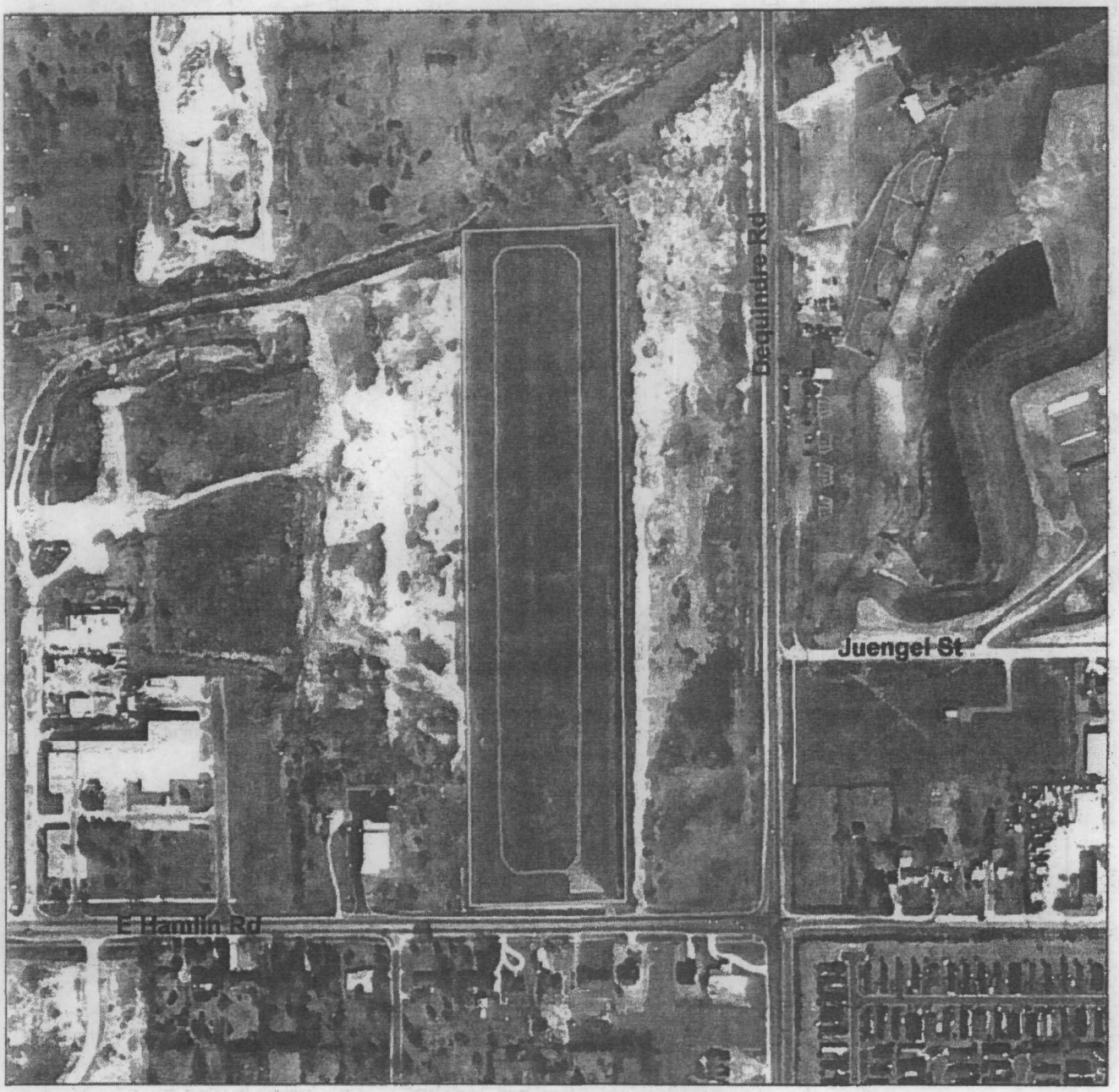
Site Base Map

Superfund

U.S. Environmental Protection Agency

J & L Landfill
Oakland County, MI

MID980609440



Legend

Site Boundary

0 200 400 Feet

N

GEOS

RPM: Jeff Gore

Created by Sarah Backhouse
U.S. EPA Region 5 on 8/3/08

Attachment 1

List of J&L Landfill Site
Documents Reviewed for Five Year Review Report

- Second Five Year Review Report, August 2006.
- First Five Year Review Report, September 2001.
- UAO for the Site Groundwater ROD, June 1998.
- Site Groundwater Record of Decision, September 1997.
- UAO for the Site Landfill ROD, June 1995.
- Site Landfill Record of Decision, June 1994.
- J&L Landfill Site file, and operation & maintenance documents.

EPA Begins Review of J&L Landfill Superfund Site

Rochester Hills, Michigan

The U.S. Environmental Protection Agency is conducting a five-year review of the J&L Landfill Superfund site in Rochester Hills. The Superfund law requires regular checkups of sites that have been cleaned up – with waste managed on-site – to make sure the cleanup continues to protect people and the environment. This is the third five-year review of this site.

The cleanup of the 17-acre closed landfill consists of a multi-layer cap over the landfill, long-term ground water monitoring and cap maintenance, and limits on use of the site area. The EPA will evaluate site documents, results of periodic inspections, and operation and maintenance sampling activities.

More information is available at the Rochester Hills Public Library, 500 Olde Towne Road. The review should be completed by the end of June.

The five-year review is an opportunity for you to tell the EPA about site conditions and any concerns you have. Contact:

Jeff Gore
Remedial Project Manager
312-886-6552
gore.jeffrey@epa.gov

Cheryl Allen
Community Involvement Coordinator
312-353-6196
allen.cheryl@epa.gov

You may also call the EPA toll-free at 800-621-8431, 9:30 a.m. to 5:30 p.m., weekdays.

EPA
Superfund Division
77 W. Jackson Blvd.
Chicago, IL 60604